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FOUR HARNESS WEAVING

The material for this booklet

has been prepared by

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for the Youth and Recreation Branch

Ontario Ministry of Community and Social Services



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REFERENCES

BOOK SUPPLIERS

Craft & Hobby Book Service, Box 626, Pacific Grove,
California 93950

Museum Books, Inc., 48 East 43 St., New York,
N.Y. 10017

The Unicorn, Box 645-F, Rockville, Maryland 20851

Horizon Handicrafts, 220 Fifth Avenue, New York,
N.Y. 10001

WEAVING PERIODICALS

Handweaver & Craftsman, 220 Fifth Avenue, New York,
N.Y. 10001

Quarterly Journal of the Guilds of Weavers, Spinners
and Dyers, c/o Mary Barker, 1 Harrington Road,
Brighton 6, England

Ontario Handweavers & Spinners Bulletin. Miss Carrie
Oliphant, 546 Pineridge Drive, Pickering, Ontario

Craft Ontario, Ontario Craft Foundation, 663 Yonge St.,
Toronto 285, Ontario
(The Jan.-Feb. 72 issue contains a valuable Canadian
suppliers index.)

Guild of Canadian Weavers Bulletin, c/o Mrs.
Isobel Brouse, 76 Dow Drive, Copper Cliff, Ontario

LEAFLETS

Tapestry Weaving

Box Loom Weaving

Lace Weaving

Grace McDowell Studio, Leaskdale, Ontario

Weaving on a Boxloom, Ministry of Community and
Social Services, Youth and Recreation Branch, 900
Bay St., Toronto 182, Ontario

Weaving for Beginners, Department of National Health
and Welfare, Ottawa, Ontario

INTRODUCTION

Welcome to the ancient and ever growing family of websters!

Your legal name may be Smith or Jones or McGillicuddy, LeBlanc, Harris, Applebaum or van Dyck, but if you become a weaver, you are also a webster, an old name for one who weaves. Just as spinster derives from one who spins.

Welcome to what could be the most ancient craft known to man. Early man clothed himself with the skins of animals. But so long ago that records are not ancient enough to tell about it, man discovered a way to weave material to cover himself and provide articles for his household.

It is thought that the art of weaving originated in the area of present day Egypt, where flax was spun and woven into a coarse linen fabric. Wool weaving appears to have originated in the ancient Mesopotamia area between the Tigris and Euphrates Rivers. Cotton weaving comes to us from ancient India and silk weaving from China.

Almost without exception we can find evidence of the weaving arts in the history of every country. As we examine this evidence, we cannot help but be amazed at the skill of the early websters and the beauty of their webs.

There was always employment for weavers and practically every community had its local webster.

Every large household employed at least one webster to provide for the needs of the family and servants,

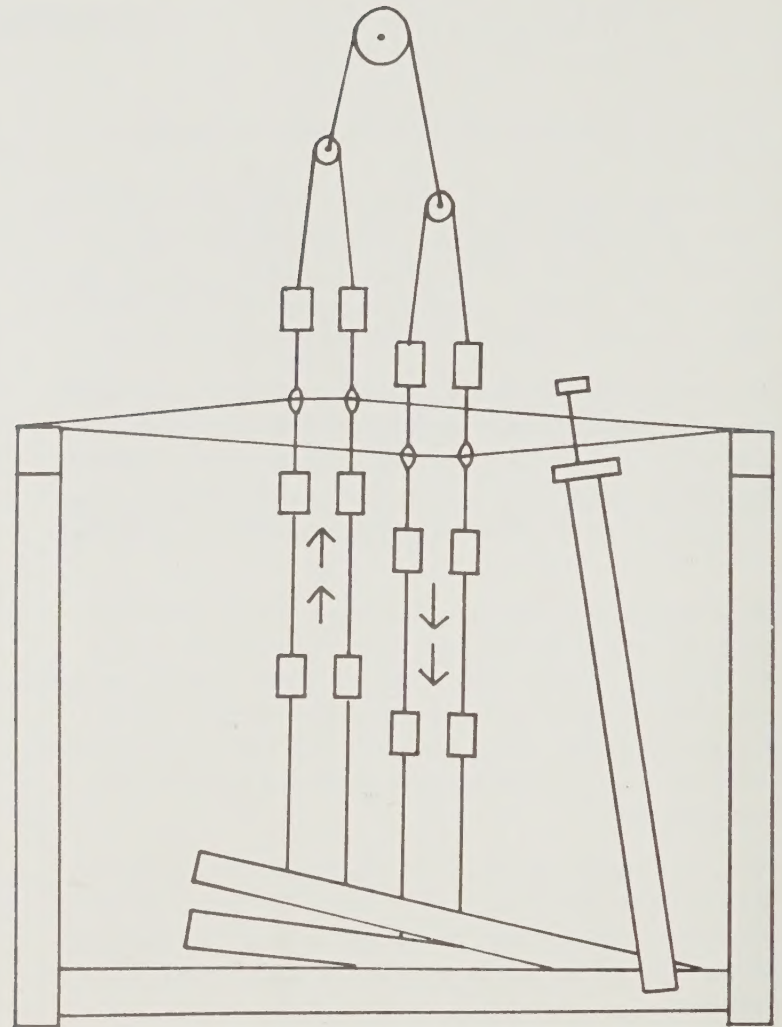
In the course of time and progress, the webster could not produce enough to meet the demands for webs. Then groups of people worked together in a weaving house in an attempt to provide enough fabric to clothe the increasing population.

Then came the industrial revolution. The weaving houses were put out of business and mechanization provided fabric faster and more efficiently than was ever possible before.

Weaving as an individual craft almost died out. But there were areas only remotely touched by the revolution and there were also individualists who defied the weaving mills and their mass production. They preserved the craft of hand weaving.

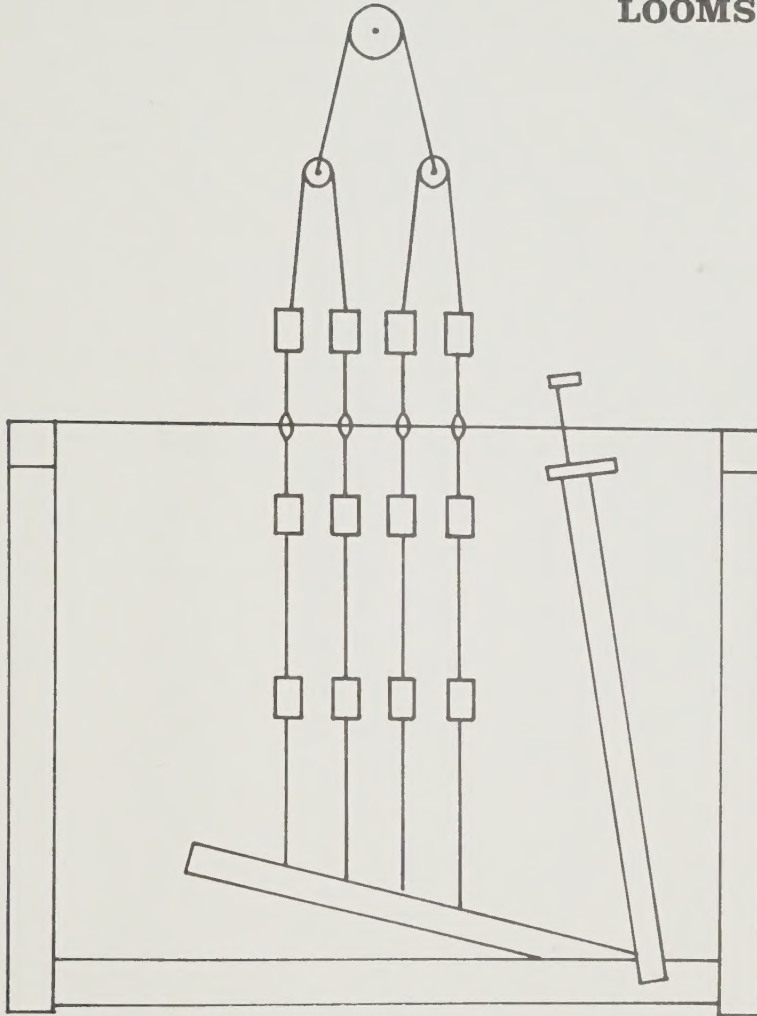
Many of us who are now websters have seen tremendous changes in the textile industry - new yarns, new looms, new methods, new fabrics. But we have also seen a revival of the art of hand weaving and today there are thousands of websters weaving in their homes for pleasure and profit. They weave beautiful fabrics using linen, wool, cotton and silk as well as the new yarns that man has learned to manufacture from the elements.

We repeat our opening greeting: Welcome to the webster family! We hope that all your webs will be pleasant to weave and a delight to the beholder.



Open position Fig. 1

LOOMS and YARNS



Neutral position Fig. 2

COUNTERBALANCED LOOMS These are looms on which the openings for the passage of the shuttle are achieved by the interaction of the pedals, lams, and the rollers and cords which are suspended over the frames. As the pedals are pressed, the lams to which they are tied are pulled down, pulling down with them their corresponding frames. The rollers operate like pulleys, and the cords roll on these to allow the frames to be pulled down. With this pulley action, the remaining frames are pulled up by the shortening of the cords, providing a counter balanced action. Thus, when any two frames are pulled down by pressing a treadle, the remaining two are pulled up by the cords. This makes the shed — the space for the passage of the shuttle.

This type of loom operates best when all treadles have ties to two lams. While it is possible to weave with single or triple treadle ties, it is more difficult than with double ties.

On the counterbalanced loom, the warp is in a straight line from the back beam, through the heddle eyes, through the centre of the reed, to the front beam.

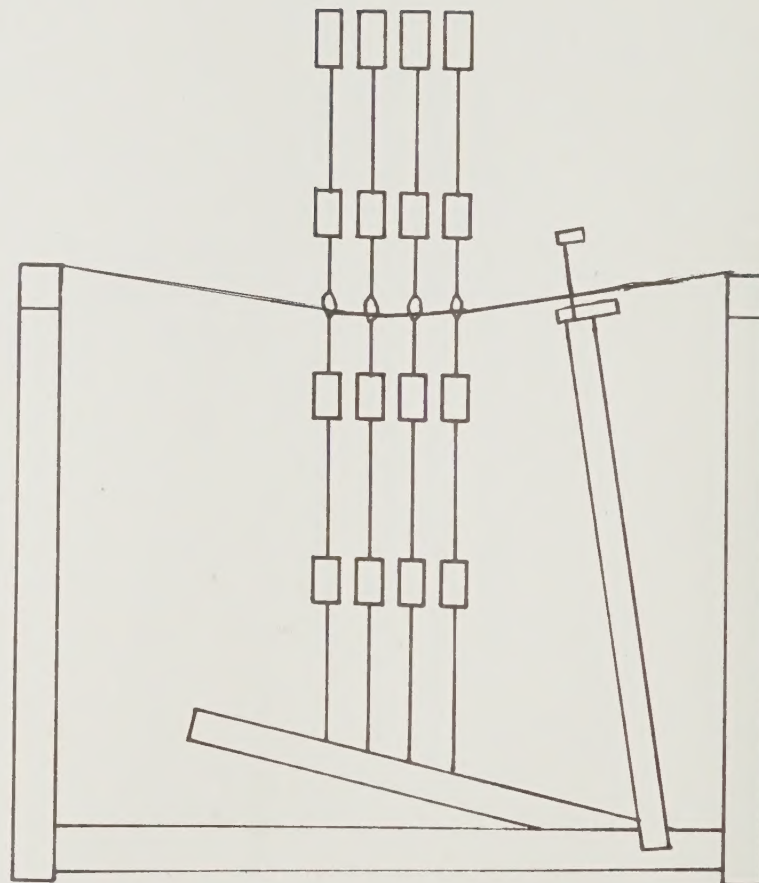
JACK TYPE LOOMS On these looms, the changing of the frames is effected by means of jacks rather than by rollers and cords as in the counterbalanced looms. The sheds (spaces for the passage of the shuttles) are achieved by the interaction of the pedals, lams and jacks on a floor loom, or by hand levers and jacks on a table loom.

On a floor loom, the operation of the pedals and jacks pushes the frame up.

On a table loom, the operation of the levers and jacks pulls the frames up.

In both types, frames not being activated by the jacks remain in a neutral position.

On a jack loom, the frames are at a lower level than on a counterbalanced loom. Therefore the warp does not pass from back to front beams in a straight line but inclines downward from the back beam to the heddle eyes, through the bottom of the read and upward toward the front beam.



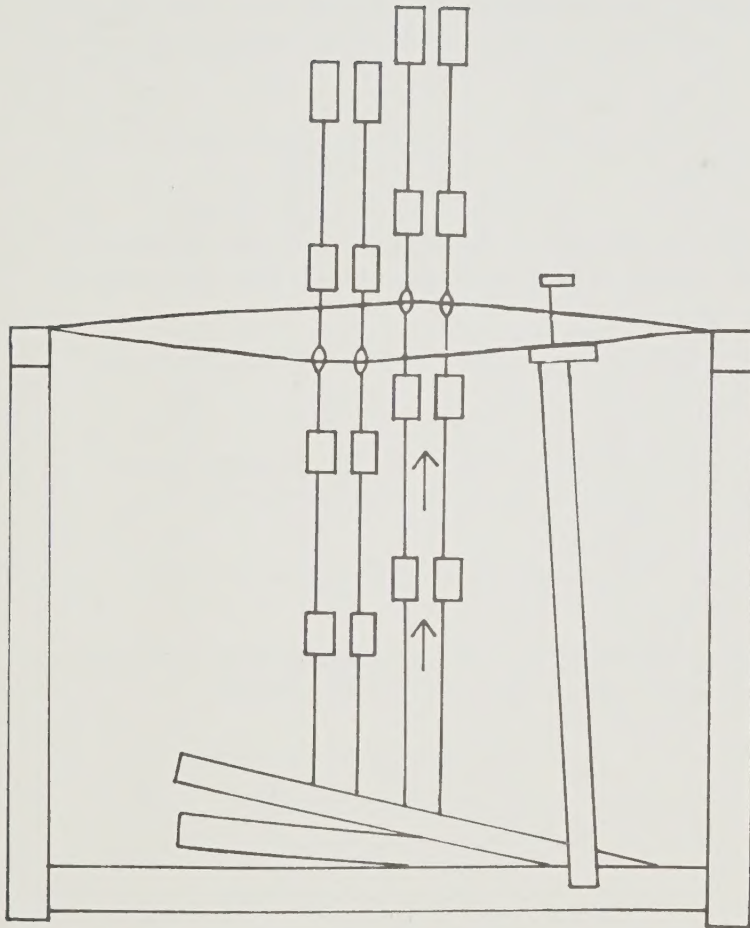
Neutral position Fig. 3

WARPERS

To measure out a given number of warp threads with a given length, a warping frame or a warping mill is needed.

WARPING FRAME OR WARPING BOARD This is a wooden frame with pegs on which the warp is wound for measuring. The distance from a peg on one side of the frame to a peg on the other side measures one yard.

You may come across frames which have a greater measurement from one side to the other, but all are usually in stated yards.



Open position Fig. 4

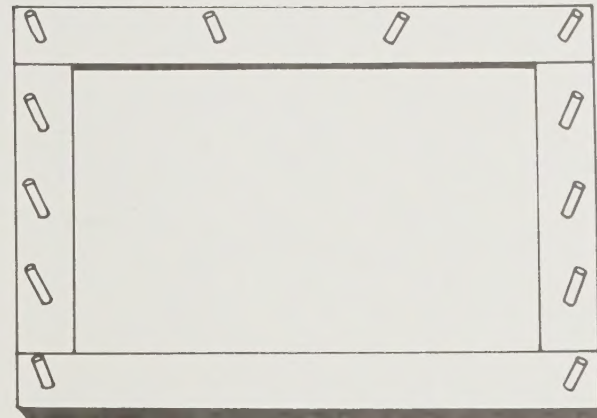


Fig. 5

WARPING MILL OR WARPING REEL A piece of equipment which consists of two frames on a stand. Cross pieces are fastened from the upright of one frame to the upright of the second frame, holding the two frames at right angles to each other. The cross pieces are fitted with pegs on which to anchor the ends of the warp and on which to make a cross in the warp. The two frames with their cross pieces and pegs revolve and the warp is wound around as they revolve. Most warping mills measure either two, three or four yards around the open frame.

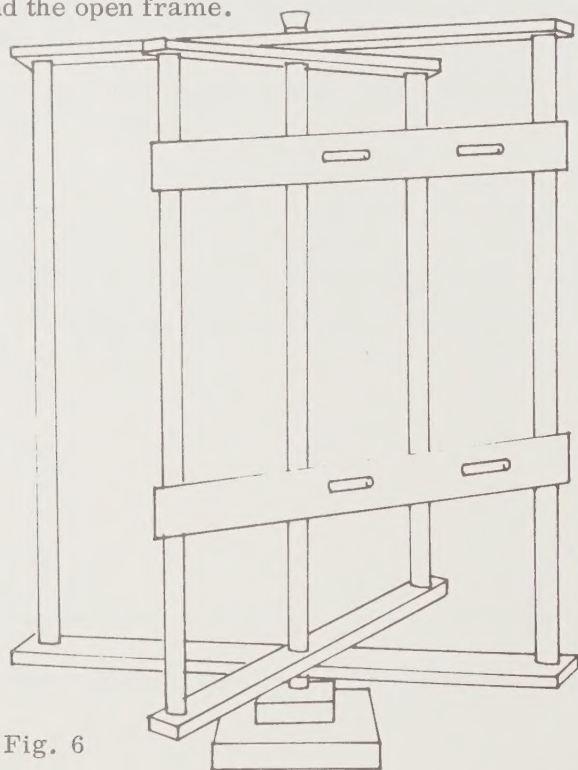


Fig. 6

SHUTTLES

FLAT SHUTTLES These are flat sticks cut out at ends for winding yarn.

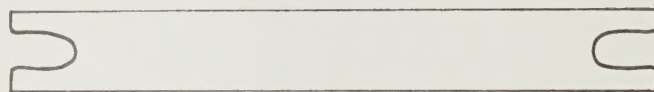


Fig. 7

RAG SHUTTLES Two flat sticks joined together by two dowels to hold more yarn than a flat stick shuttle.

Fig. 8

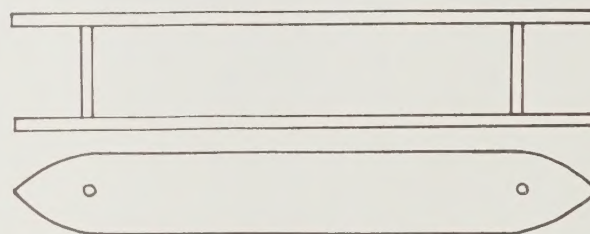


Fig. 9

BOAT SHUTTLES Shaped shuttles with a well drilled out and a spindle inserted to hold a bobbin.

Fig. 10

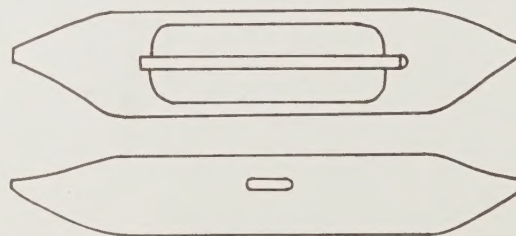


Fig. 11

BOBBINS

The yarn is wound onto these and the bobbins placed in the boat shuttle for weaving. They may be wood or plastic, or they may be cardboard tubes called quills.



Fig. 12

WINDERS

Winders are used to feed the yarn onto the bobbins or quills.

HAND WINDERS These fasten on to a table or shelf. The wheel is turned by hand to wind the yarn on the bobbin which has been placed on the spindle.

ELECTRIC WINDERS These have the spindle as in the hand winders but an electric motor is used to turn the spindle in place of the hand wheel.

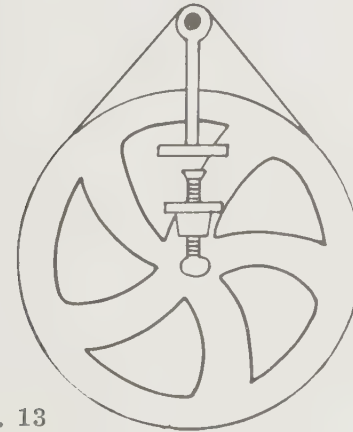


Fig. 13

REEDS are inserted in the beater to keep warp at even intervals and to beat weft into place. Reeds are evenly spaced pieces of metal set between two shafts. The spaces, called dents, are set to make a certain number of dents per inch.

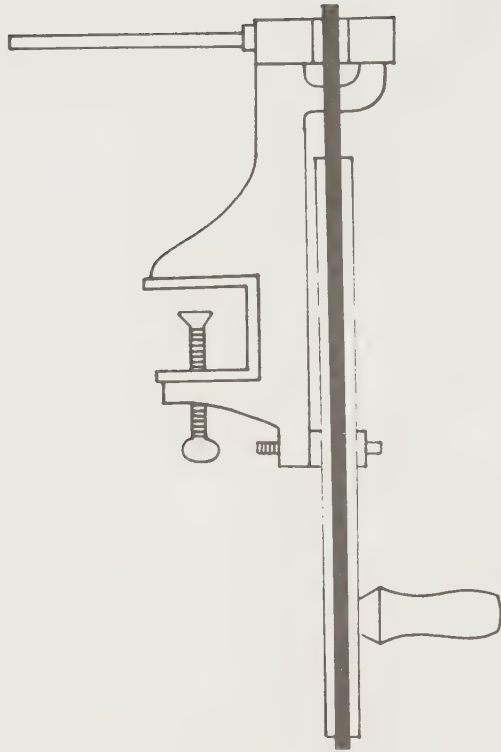


Fig. 14 Side view of hand winder

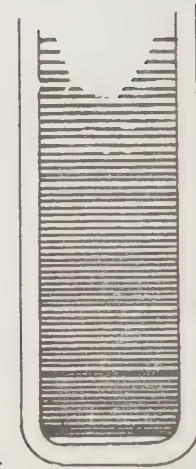
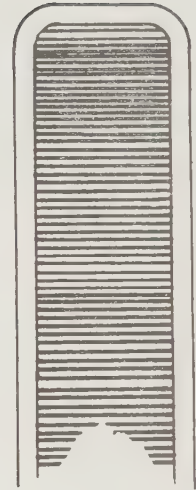


Fig. 15

YARNS

LINEN is the yarn spun from the inner fibres of the flax plant stalk and the cloth woven from it.

The flax stalks are pulled rather than cut. They are dried and seeds are removed. The next step is fermenting (retting) by soaking in still water to separate the fibres. The pulpy parts are removed and the fine fibres are spun into yarn.

Flax was cultivated in Egypt some 6000 to 8000 years ago and is thought to be the earliest fibre used for spinning and weaving. Early fabrics were coarse but as skill and equipment improved, fabrics of remarkable fineness were woven.

WOOL is obtained by shearing sheep. And several other animals may be sheared or combed to obtain fibres for spinning. As early as 4000 B.C. the people living between the Tigris and Euphrates Rivers in Mesopotamia, were famous for their woolen fabrics. By 3000 B.C. woolen goods accounted for a major part of the state revenue.

COTTON is a plant believed to have been cultivated in India from about 3000 B.C. and extremely fine fabrics were woven there.

SILK spinning and weaving originated in China. Legend has it that a princess strolling through a garden watched a silkworm spinning a cocoon. She thought that the thread wound on the cocoon could be unwound and used. She was right and for some 4500 years silkworms have been providing man with fine and beautiful yarn for weaving.

MAN-MADE FIBRES In this century man has discovered how to make new fibres by chemical processes. They have some characteristics different from natural fibres. Rayon, acetate and triacetate are obtained from cellulose. Nylon, acrylic and polyester are newer fibres made from chemical elements. Glass, metallics, rubber and protein fibres are derived from nonfibrous natural substances.

Generally, man-made yarns have not been readily available to handweavers. Eventually they should be.

PREPARATION for WEAVING

MAKING A WARP ON A FRAME The warp is carried back and forth across the frame using as many pegs as are necessary to measure the yardage required for the project, and for as many times as necessary to give the required number of warp ends.

1. Attach yarn to peg which will give the yardage required.
2. Carry yarn across frame and working upward, go back and forth across the frame and around each succeeding peg until you reach the pegs across the top of the board.
3. After carrying the yarn around the right corner peg, take it over the first peg, under the second, around the final corner peg on the left. Carry it over the second peg, under the first, over to and around the right corner peg, and following the path of the warp as it came up, back down to the beginning.
4. Continue this way until enough warp has been measured off. NOTE: Every cross represents double the number of threads you are using to make your warp. For example, if one warp end is being wound, each cross represents two warp ends—one working up the board, the other, down. If two warp ends are being used together, each cross represents four warp ends. And so on. See Fig. 16.

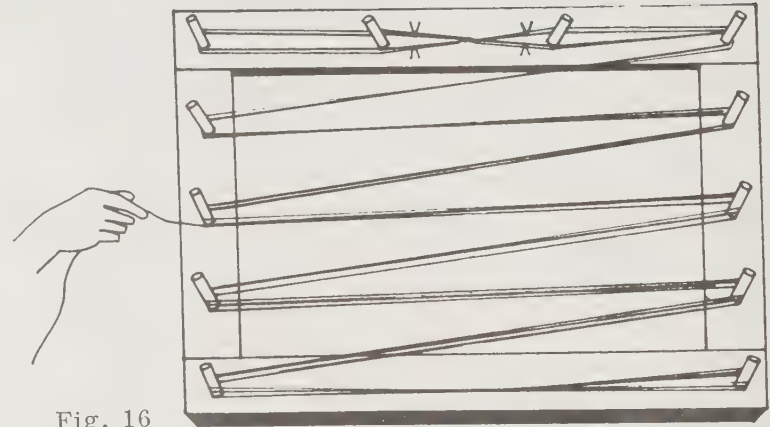


Fig. 16

5. When the warp is completed, tie the cross to preserve it. Also make holding ties at intervals in the warp.
6. Remove warp from frame, putting your hand through the bottom loop and drawing the warp through like a crochet chain to shorten it and keep it in order.

WARPING ON A MILL OR REEL

The warp is made by fastening yarn to pegs on one cross piece low on the mill and revolving the frames so you wind the warp yarn around the mill and upwards to the top cross piece where the cross is made. Yarn is returned by reversing the direction of the the turns of the mill and following the path of the ascending warp down to the beginning. Ties are made at the cross and at intervals in the warp, as in warping on a frame.

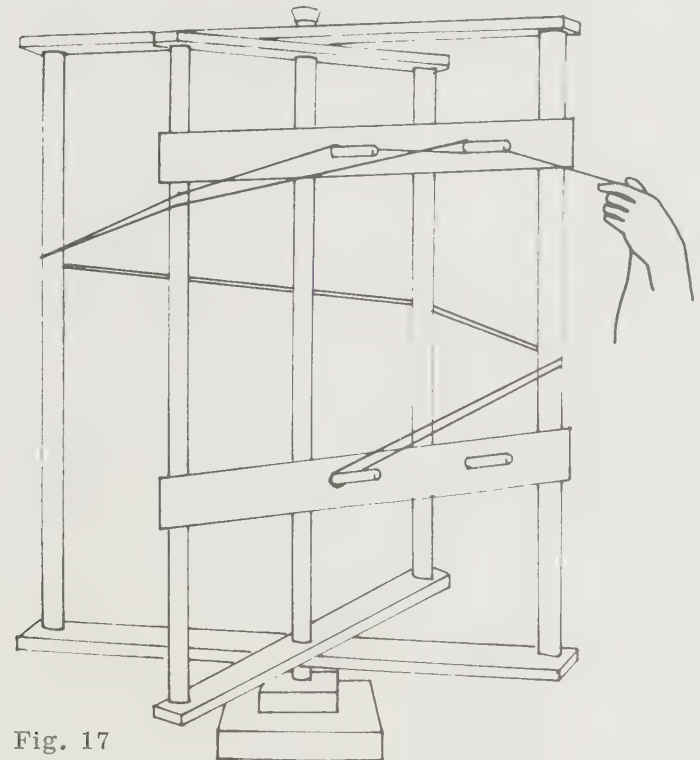
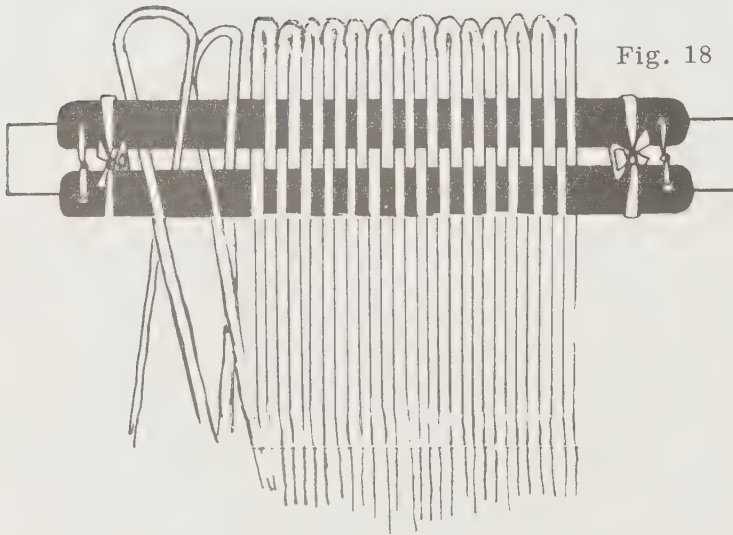


Fig. 17

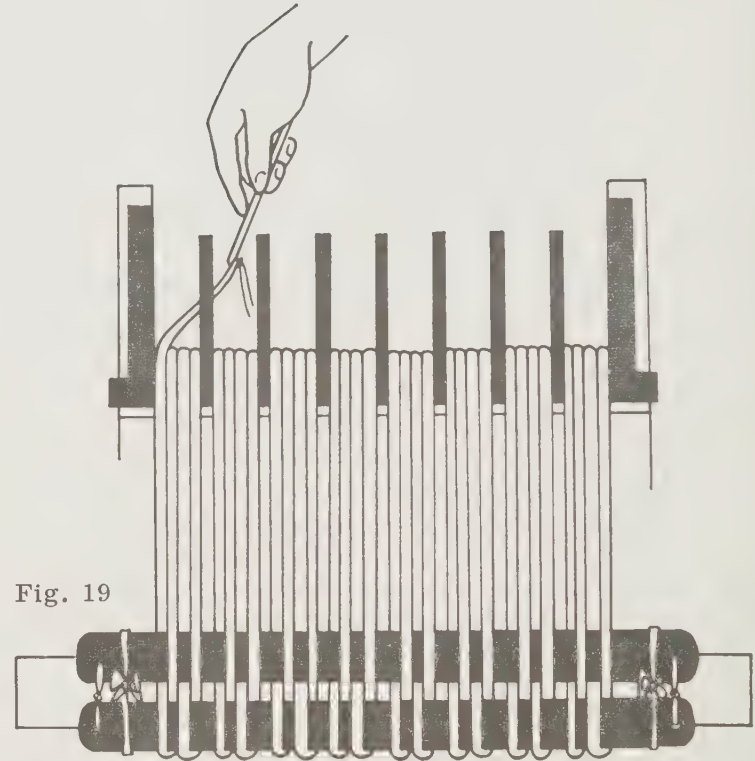
BEAMING THE WARP

Beaming the warp is the process of getting the warp on the loom, ready for threading.

1. Put shed sticks (flat sticks with holes in ends) through the cross of the warp and fasten in front of loom. See Fig. 18.



2. Put reed (comb-like piece which goes in the beater) or raddle (similar to reed but with only two spaces per inch, and no top bar) in the beater of the loom.
3. Break the ties at the cross. Spread loops of warp in reed or raddle in 1/2 inch groups. See Fig. 19.



4. Catch all loops on a metal rod. Spread evenly. With long cord, lash the rod with the loops to a similar rod in the hem of the canvas apron on the back roller, making sure that the apron comes up the back of the loom and over the back bar which is above the roller. See Fig. 20.
5. Using the crank, roll the warp on to the roller, inserting paper between layers of yarn. Continue rolling, pulling warp at intervals to straighten out tangles, loose threads and to put some tension on it. See Fig. 21. Tie warp to front of loom.
6. Transfer the shed sticks from in front of beater to back of loom. If using a reed to spread the warp, turn stick nearest the reed on edge so as to divide

the threads. Place an extra stick in the division (called the shed) to hold it open while you take out the shed stick and transfer it to the shed behind the reed, and carry the stick to the back beam. Follow the same procedure with the second stick. Tie shed sticks at back of loom.

If using a raddle to spread the warp, release raddle from beater frame and remove. One at a time, slide shed sticks to back of loom. Tie shed sticks at back of loom.

7. Unfasten warp from front. Cut loops. Take ends to the back and tie in bundles at shed sticks in preparation for threading the loom.

from back of loom

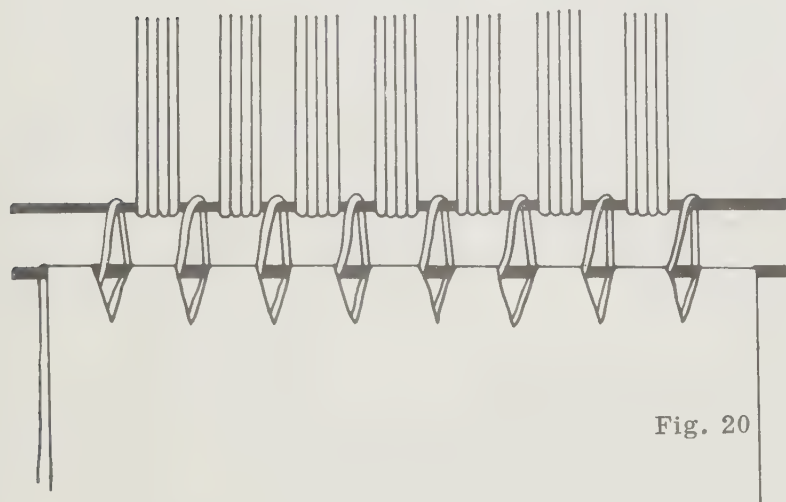


Fig. 20

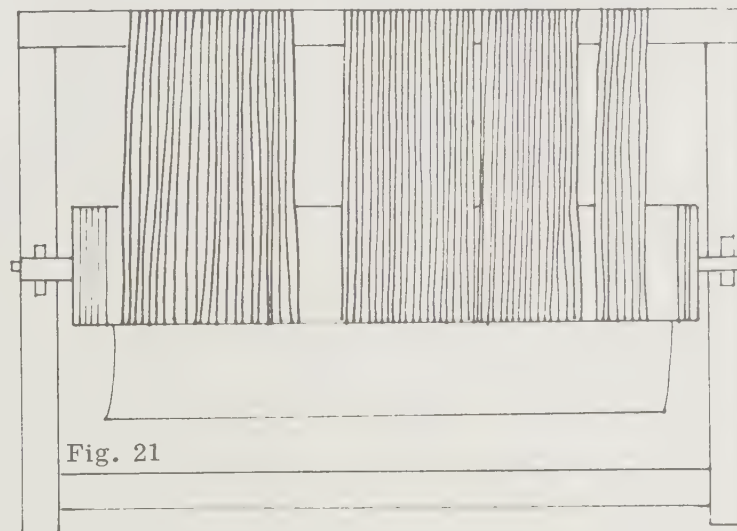


Fig. 21

THREADING

THE THREADING DRAFT

The warp ends are threaded through the eyes of the heddles according to the threading draft.

The threading draft is drawn on four rows of squares. Each filled square represents one warp end. The rows of squares are numbered from the bottom to the top. The pattern starts at the right and is read towards the left because this is the most convenient way to do the threading. See Fig. 22.

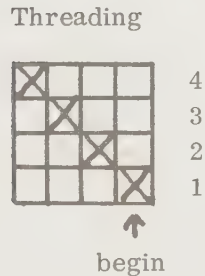


Fig. 22

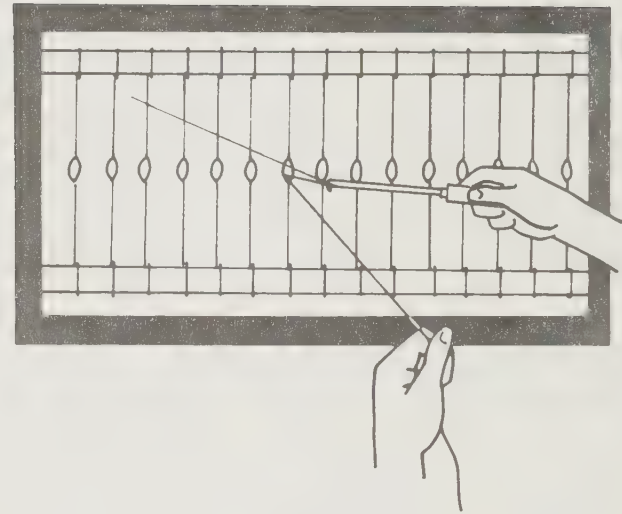


Fig. 23

TO THREAD THE HEDDLES

A hook is put through each eye to catch the warp ends hanging from the shed sticks behind the frames. If you have a helper, he would pick up the individual warp ends and hold them in a suitable position behind the frames so you can catch each one with the hook and pull it through the heddle. When working alone, the weaver must pick up her own warp ends and catch them with the hook. See Fig. 23.

SLEYING THE REED

After the heddles have been threaded, the warp must be threaded through the reed placed in the beater to space out the warp and later used to beat the weft into place. Reeds come with different sizes of spaces between the wires — spaces are called 'dents'. For instance, a 10 dent reed is one with 10 spaces per inch. Sleying or threading through the reed may be done in various ways — one end per dent, two or more ends per dent, or dents may be skipped. Sleying may also be mixed. See Fig. 24.

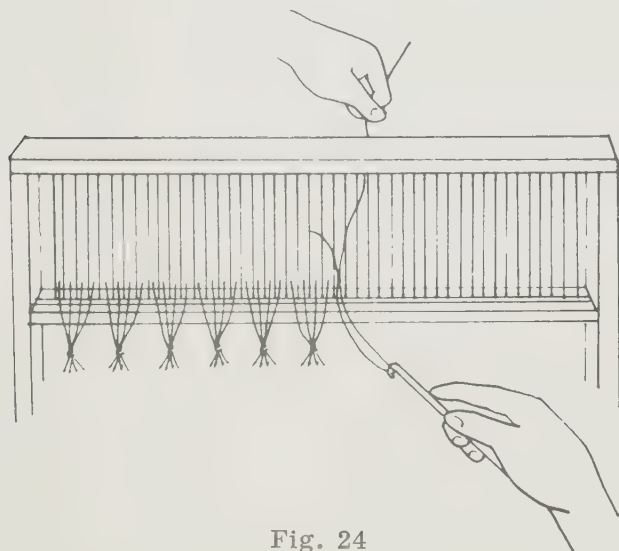


Fig. 24

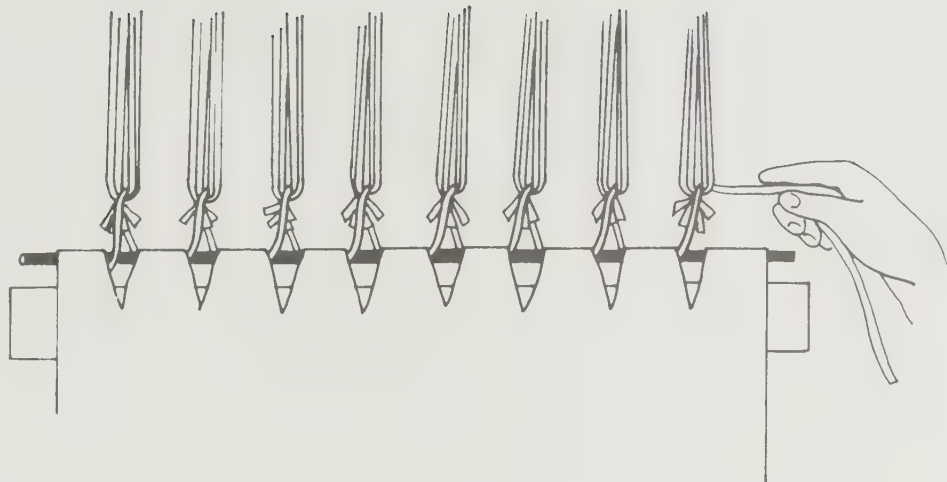


Fig. 25

FRONT TIE-ON

Pick up one inch groups of warp ends. Draw them through fingers to even the tension on all warps, then tie the warp in a single knot as near the end of the group as possible. Be sure to catch all ends in the knot. Tie long cord to the front roller apron rod to the left of where the threads will be attached. Bring cord up through the middle of one group of warp ends, down around the apron rod and continue across. Adjust tension of the entire warp by pulling on the cord loops from left to right until tension is even across. Tie end of cord to apron rod. The cord will equalize the warp. See Fig. 25.

DRAFTS

TIE-UP DRAFT

A diagram to show which frames are to be tied to which treadles usually appears over the treadling draft on a pattern sheet.

1. Standard tie-up: See Fig. 27. The vertical lines of squares represent the treadles as numbered 1, 2, 3, 4, a, b. Horizontal lines represent the frames, the same as in threading. According to the draft, treadle 1 is attached to frames 1 and 2; treadle 2 to frames 2 and 3; treadle 3 to frames 3 and 4; treadle 4 to frames 1 and 4. These four treadles are pattern treadles.

Treadle a is attached to frames 2 and 4; treadle b to frames 1 and 3. These two treadles alternate to produce a tabby or plain weave fabric. In standard tie-up, the treadles are always attached to two frames. There are times when it is more convenient to change the order of the treadles to make it easier to weave, but standard tie-up always has this same combination of ties, no matter what the order.

2. Direct tie-up: See Fig. 28. In this tie-up, the a and b tabby treadles are the same as for the standard tie-up, but the pattern treadles are each tied to only one frame.
3. Special tie-ups: Some weaving techniques require a tie-up which is neither standard nor direct. You will encounter these as you come across drafts for various techniques. For example see Project 10.

4. Tie-up process: Over the years many different tie-up systems have been tried: double cord ties, chain ties, single cord ties and hook ties, and others. The latest method of making the tie-up is to have a length of cord doubled and knotted and inserted into the eyes of the lams with the knots at the eyes. The eyes on the treadles are turned a quarter turn. A wire rod with a crook on the end is inserted through the eyes, catching the loops of the cords between eyes on the treadle. The crook fastens on the first eye, securing the rod. See Fig. 26.

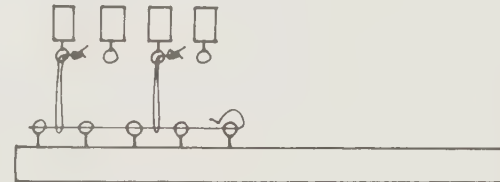
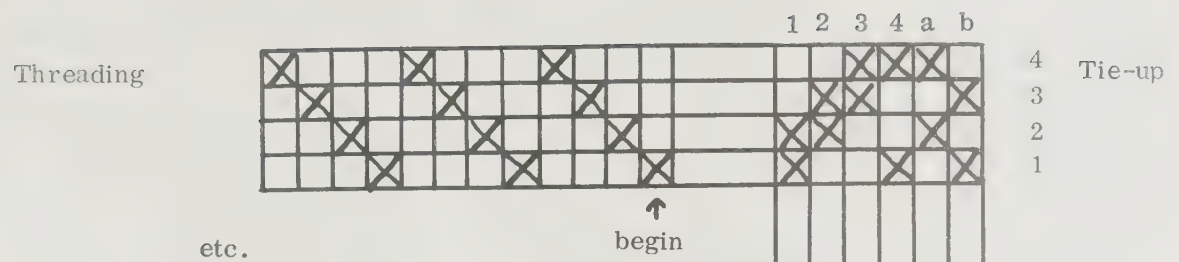


Fig. 26

TREADLING DRAFT

This draft usually appears below the tie-up draft and is arranged in columns. Marks are placed in the columns indicating which treadles to use. You read from the top down. See Fig. 29.



Sley: 2 ends per dent
10 dent reed =
20 ends per inch

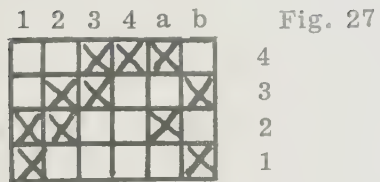
tabby

pattern

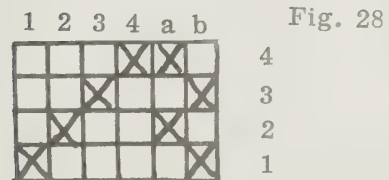
(twill)

Treadling

Standard Tie-up



Direct Tie-up



Treadling Draft

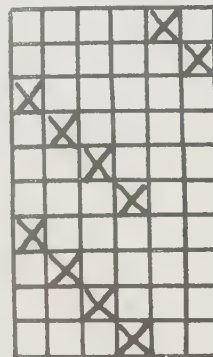
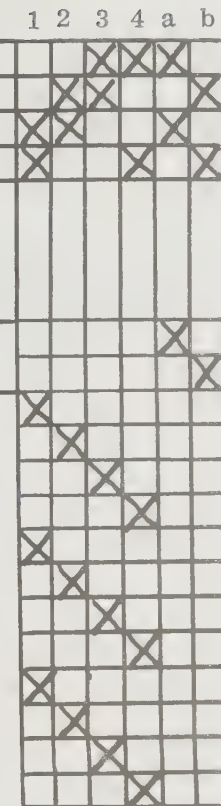


Fig. 29

Fig. 30

Complete Weaving Draft



THE WEAVING PROCESS

1. The yarn is wound evenly onto the bobbins. Bobbin is placed in the shuttle with the end of yarn put through the hole in one side of the shuttle.
2. A treadle is pressed with a foot moving frames up or down (depending on whether the loom is counter-balanced or jack-type) and making an opening through the width of the warp ends.
3. Shuttle is passed through this opening (the shed) and caught at the opposite side of the warp. The hole through which the warp comes from the shuttle should be towards the weaver. See Fig. 31.
4. Grasp the centre of the beater and pull forward to put the weft into place. Some yarns require a hard beat. For others the weight of the beater is enough to put the weft into place. Still others, wool for instance, you do not beat at all but just press the weft into place gently.
5. At the beginning and end of a bobbin of yarn, the ends are carried around the edge thread of the warp and brought back into the shed for a half inch or so.
6. As weaving progresses, more warp must be released from the warp beam and the woven fabric wound onto the cloth beam.

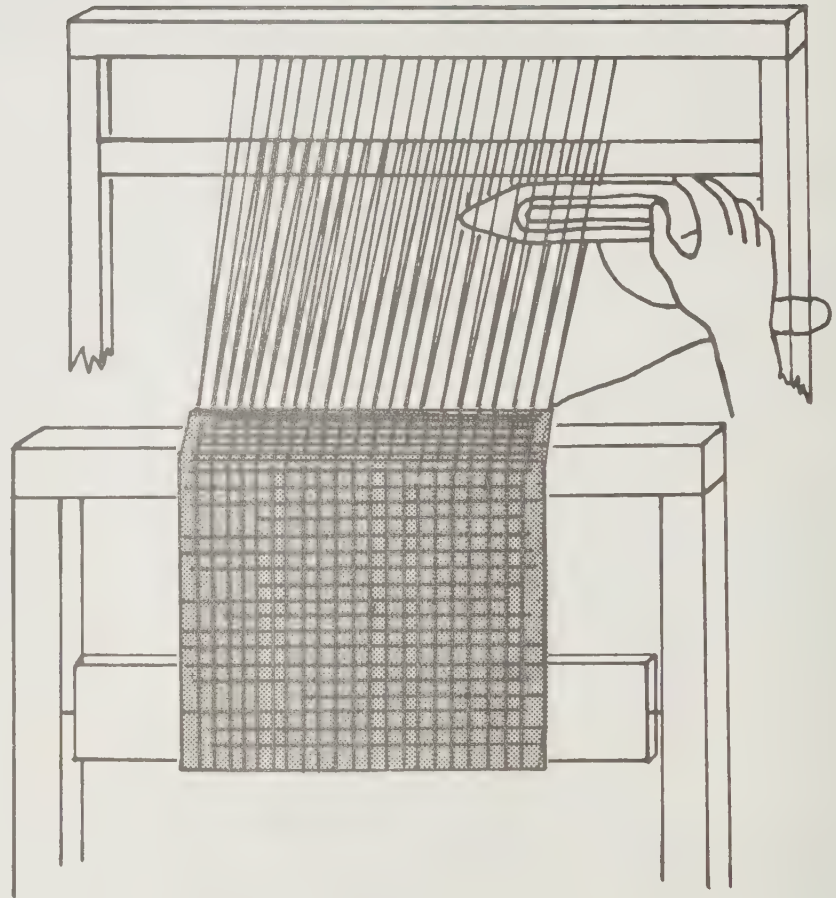


Fig. 31

TABBY WEAVE

Tabby, also called plain weave, is the simplest form of weaving. Each weft thread alternates over and under the warp, with the order reversed on alternate rows. See Fig. 32.

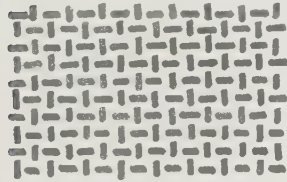


Fig. 32



Fig. 33

Many variations are possible without changing the characteristics of the weave. Some follow.

1. BASKET WEAVE Two or more threads are used together and woven with the same number of shots. See Fig. 33
2. WEFT FACE The warp is sleyed far enough apart so that the weft beats down to cover the warp as in Fig. 34.
3. WARP FACE The warp is sleyed very closely and covers the weft as in Fig. 35.

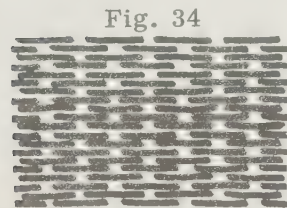


Fig. 34

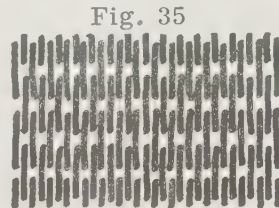


Fig. 35

4. SPACED DENT There are intervals where the thread is not sleyed through the reed but spaces are left. Weaving is done right across the width, threaded areas and spaces. Spaces may also be left in the weaving to give a more open effect. See Fig. 36.

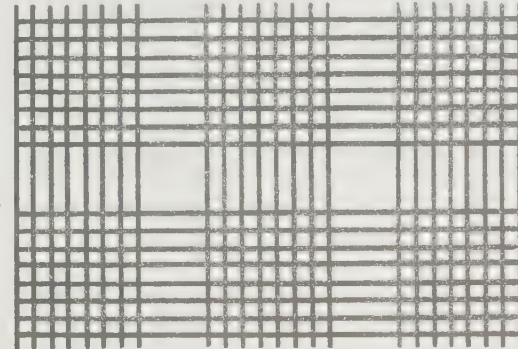


Fig. 36

5. PACKED DENT There are intervals where the thread is sleyed double, triple or quadruple to give a more solid effect in some parts of the weaving. See Fig. 37.

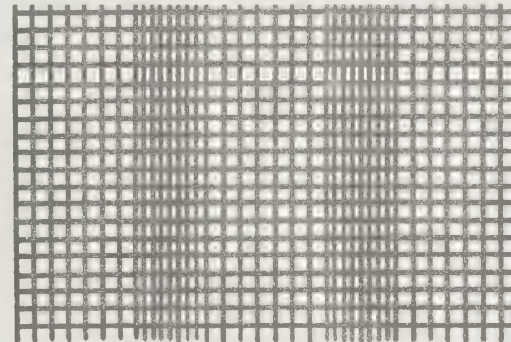


Fig. 37

6. COLOUR PATTERN A pattern effect is produced by use of planned placing of coloured yarns in the warp to create warp stripes and in the weft for weft stripes. Placing in both warp and weft creates checks and other patterns. See Fig. 38 & 39



Fig. 38



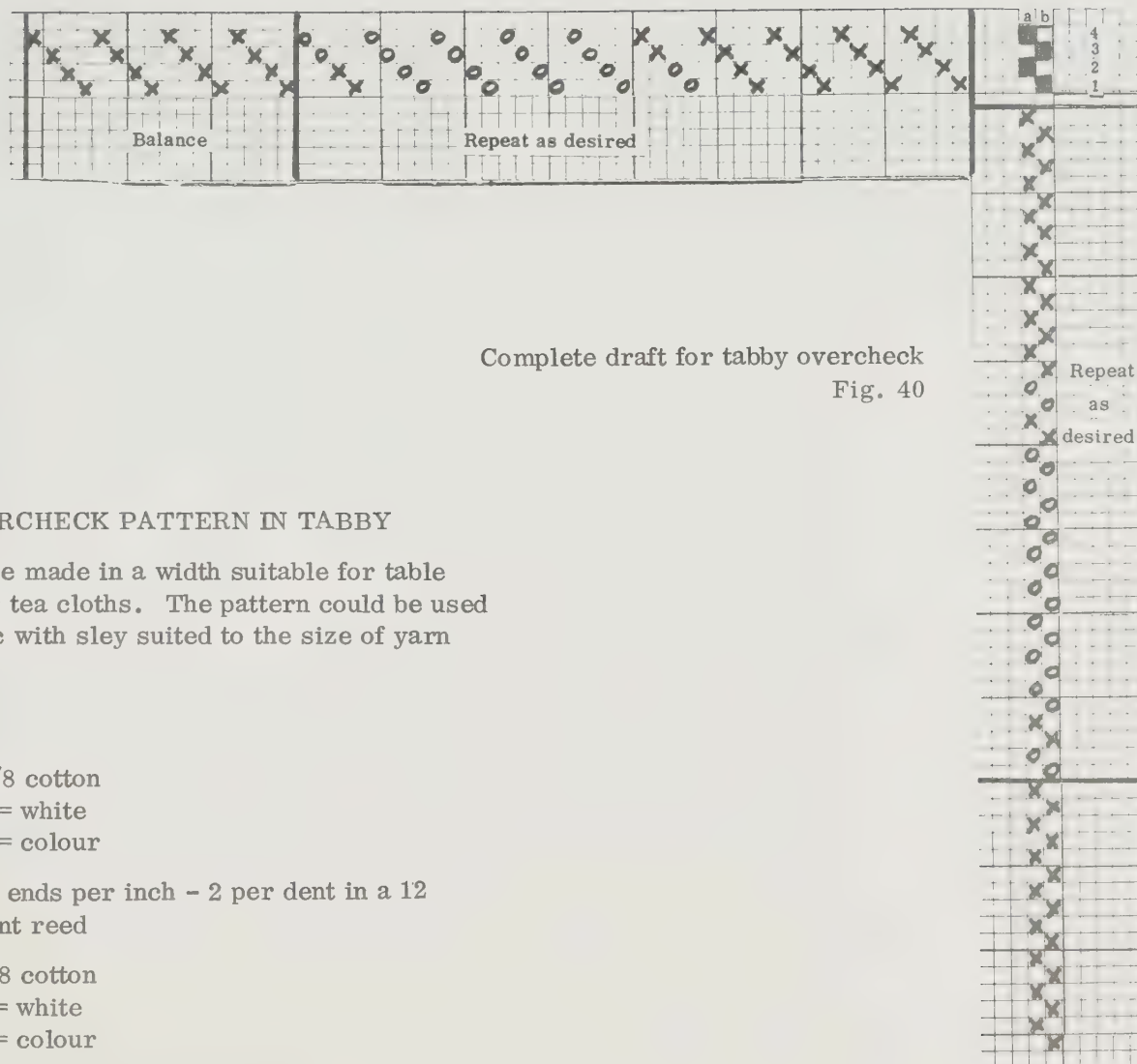
Fig. 39

PROJECTS

Introduction to Projects

One of the joys of weaving is the production of a great variety of fabrics for many uses. There are always textiles we want to weave for ourselves, our homes, our friends. There is no end to the uses of lovely handwoven fabrics.

To introduce you to this joy, this booklet includes suggestions for a series of ten projects which range from simple weaving structures to the more complex — from plain weave fabrics, through some of the twills, to huck and huck lace, two and four block two-shuttle pattern weaves, tapestry, flat rug weaving, and finally to wearing apparel in a poncho and a seamless, sleeveless jerkin.



Project 1 — OVERCHECK PATTERN IN TABBY

This fabric may be made in a width suitable for table mats or wider for tea cloths. The pattern could be used for clothing fabric with sley suited to the size of yarn used.

Warp: 2/8 cotton

o = white

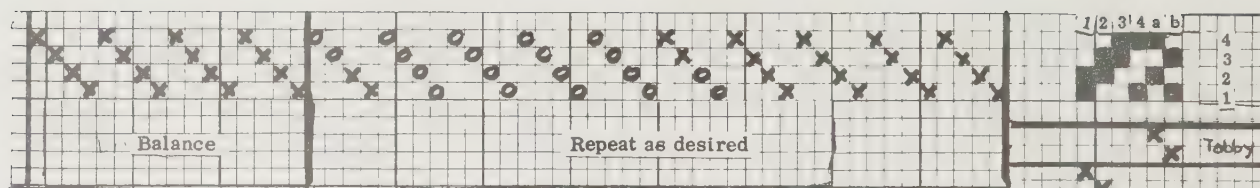
x = colour

Sley: 24 ends per inch - 2 per dent in a 12
dent reed

Weft: 2/8 cotton

o = white

x = colour



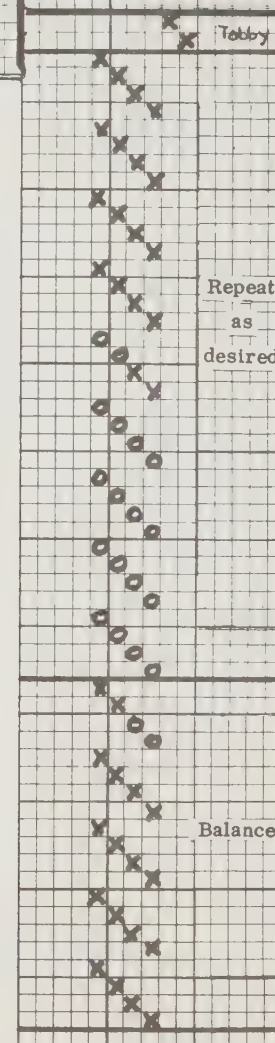
Complete draft for twill overcheck
Fig. 41

Project 2 — OVERCHECK PATTERN IN TWILL

Twill weave has an appearance of diagonal lines produced by passing the weft over two and under two warps, with each succeeding shot moving over one thread. The diagonal may slant to the right or left depending on the threading and treadling. Both right and left slant twills are used in herringbone and other fancy twills.

Using the same warp as in Project 1, weave in twill sequence instead of tabby.

As in the tabby project, this fabric may be woven in any width desired with cotton, wool or other yarn.



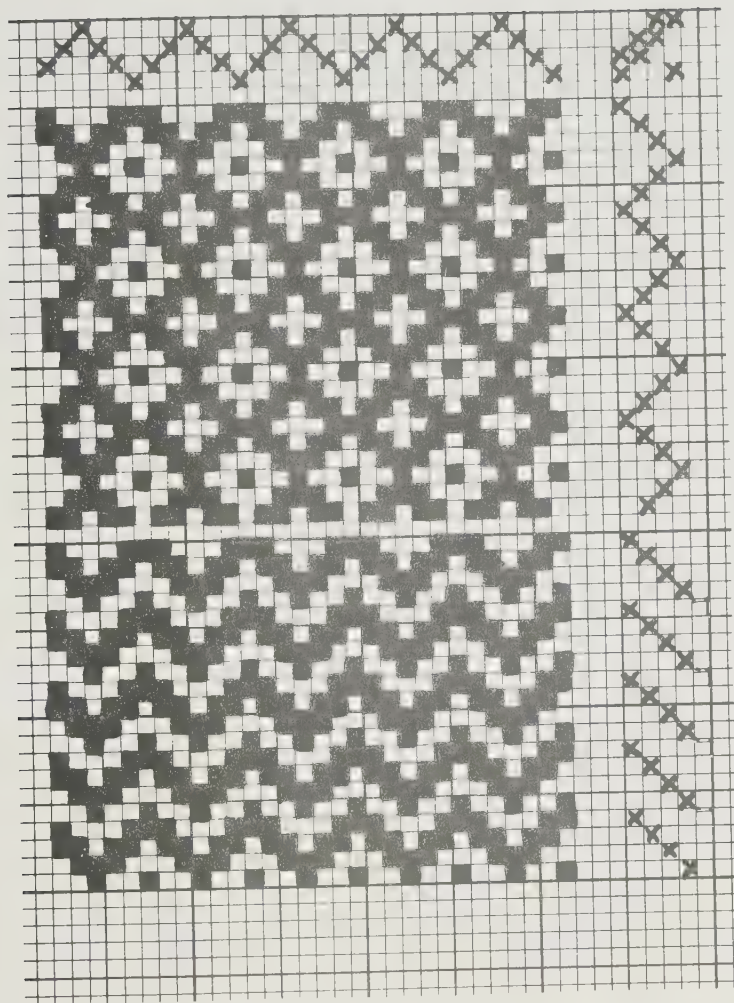
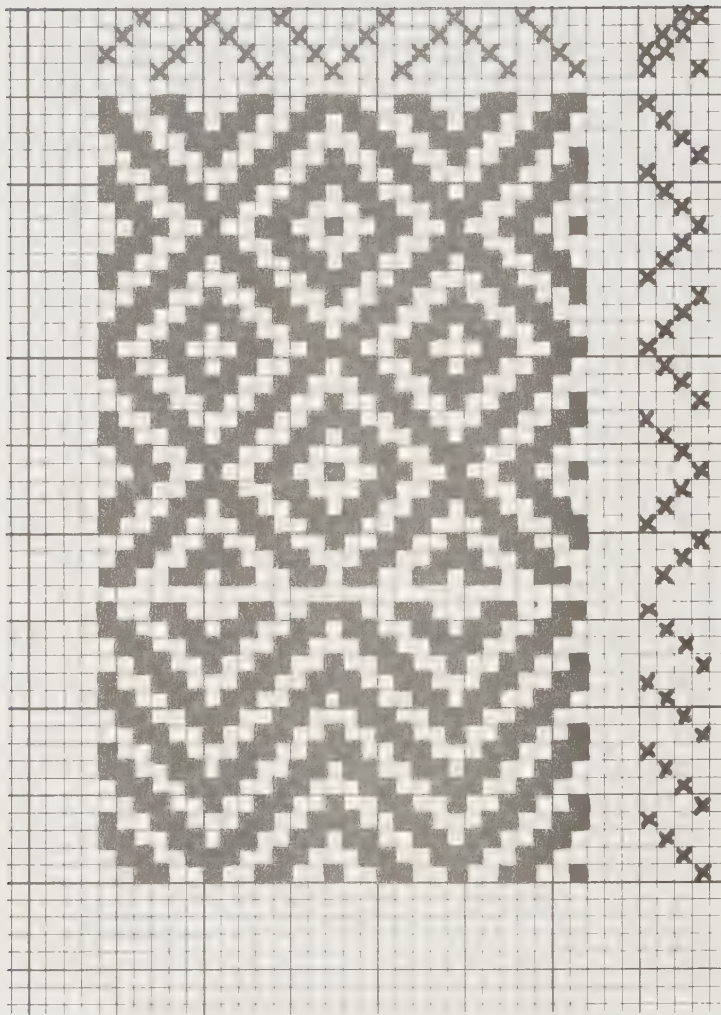


Fig. 42 Point twill chevron effect

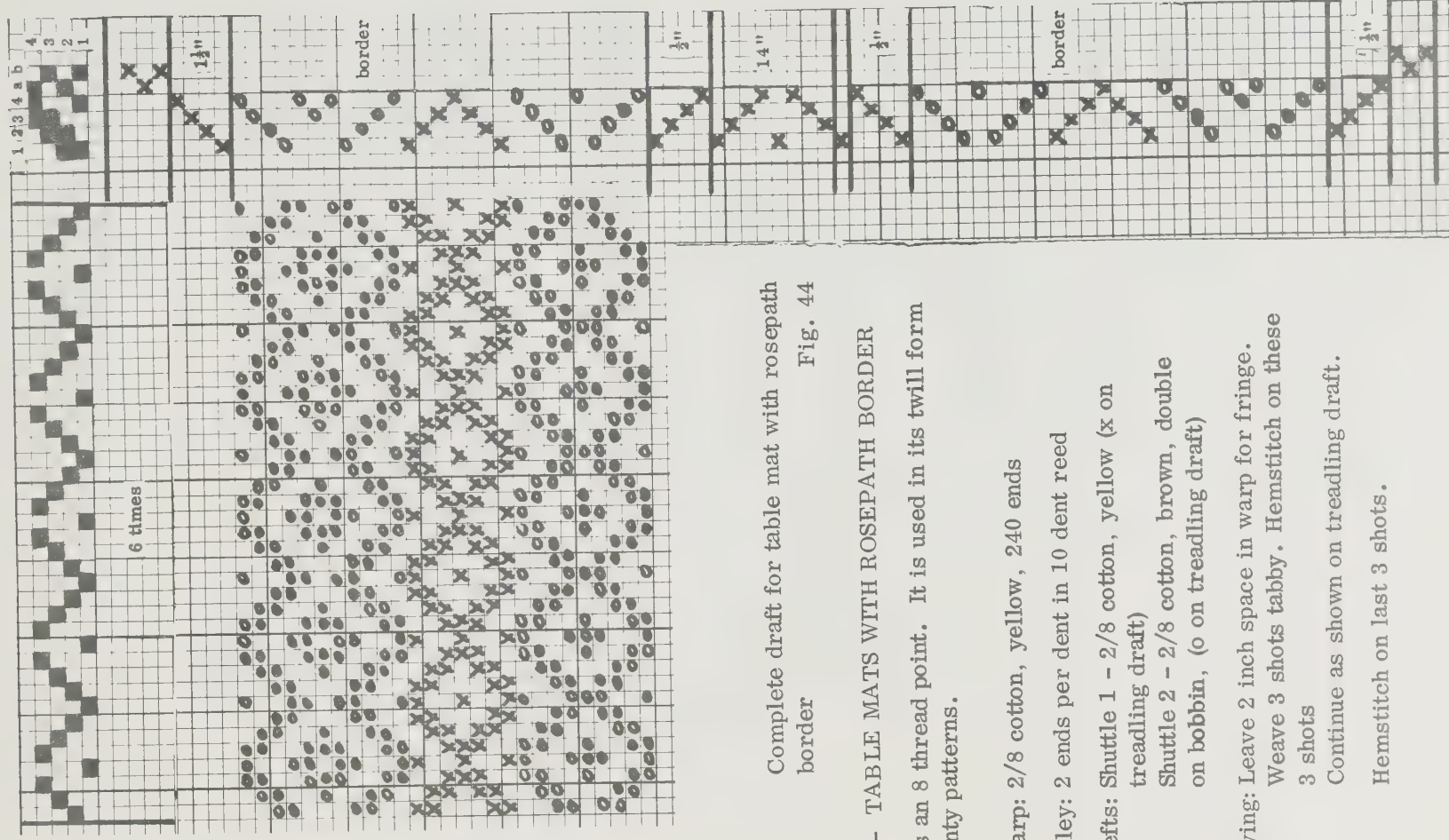
POINT TWILLS Twill is not always threaded in one direction as in Project 2. Often it is used in point form. That is, the threading may be reversed at given points.

Simplest point twill is threaded in repeats of 1, 2, 3, 4, 3, 2 which is a 6 thread point. The treadling is in the same order - treadles 1, 2, 3, 4, 3, 2 and repeat. This is the basic point twill. It may also be woven with the regular twill treadling 1, 2, 3, 4 and repeat, to make a chevron effect, as in Fig. 42.



Larger point twill is threaded in repeats of 1,2,3,4,1, 2,3,4,3,2,1,4,3,2, a 14 thread point. The treadling is in the same order. See Fig. 43.

Fig. 43 Larger point twill



Complete draft for table mat with rosepath
border
Fig. 44

Project 3 — TABLE MATS WITH ROSEPATH BORDER

Rosepath is an 8 thread point. It is used in its twill form and for dainty patterns.

Warp: 2/8 cotton, yellow, 240 ends

Sley: 2 ends per dent in 10 dent reed

Wefsts: Shuttle 1 - 2/8 cotton, yellow (x on treadling draft)

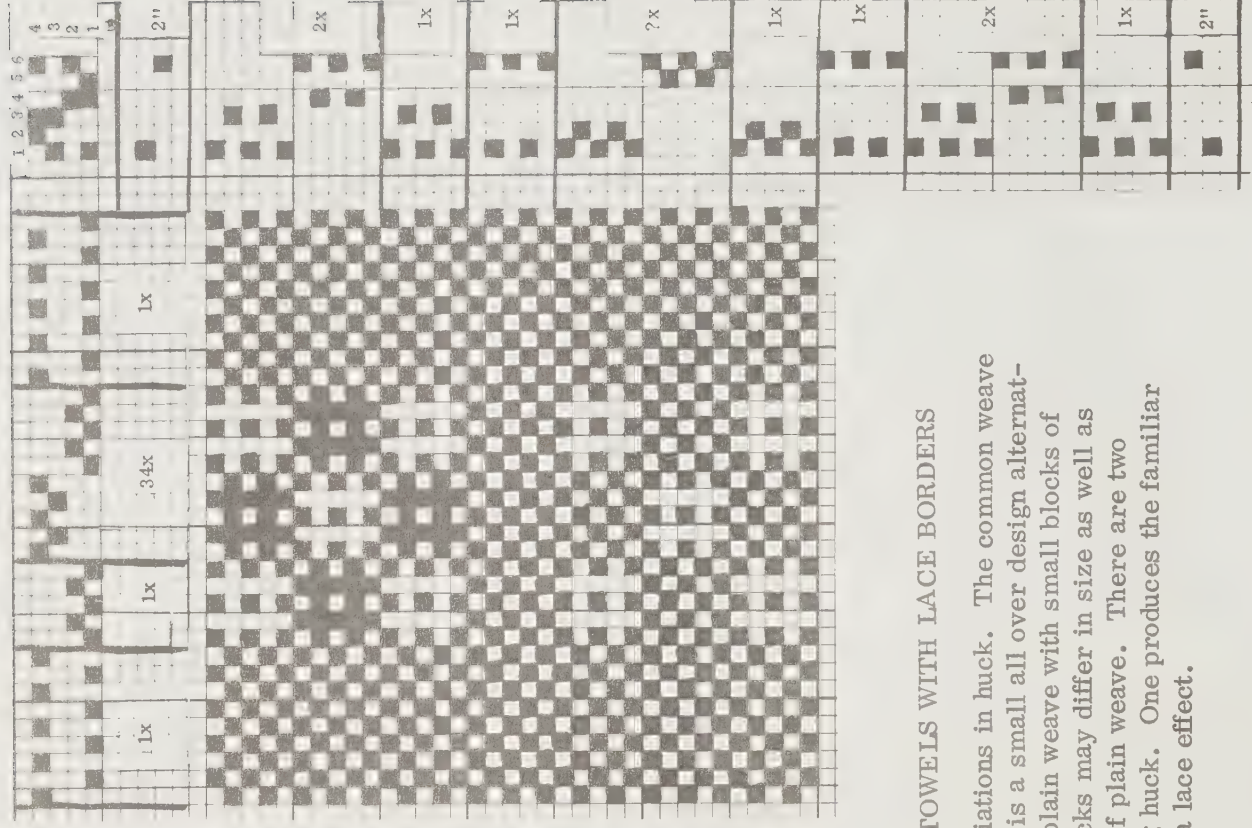
Shuttle 2 - 2/8 cotton, brown, double on bobbin, (o on treadling draft)

Weaving: Leave 2 inch space in warp for fringe.

Weave 3 shots tabby. Hemstitch on these 3 shots

Continue as shown on treadling draft.

Hemstitch on last 3 shots.



Complete draft for
huck towel with
lace border

Fig. 45

Project 4 — HUCK TOWELS WITH LACE BORDERS

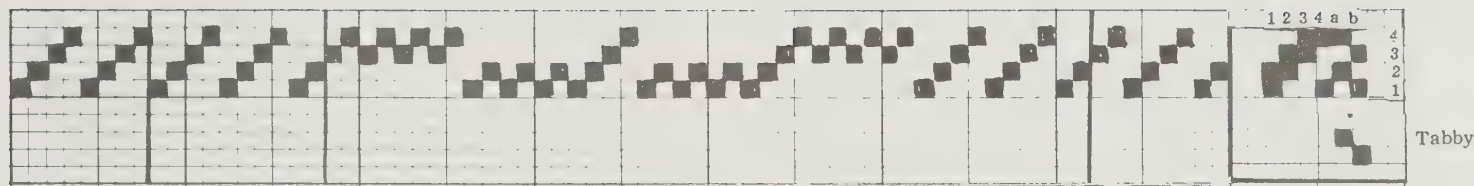
There are many variations in huck. The common weave seen often in towels is a small all over design alternating small blocks of plain weave with small blocks of pattern weave. Blocks may differ in size as well as having some areas of plain weave. There are two methods of treadling huck. One produces the familiar texture, the other, a lace effect.

Warp: 2/16 cotton, white, mercerized, 364 ends

Sley: 2 ends per dent in 15 dent reed

Weft: Same as warp

Weaving: As per treadling draft. Weave for the length desired in the central section marked ?x.



Complete draft for apron with monks belt
border

Fig. 46

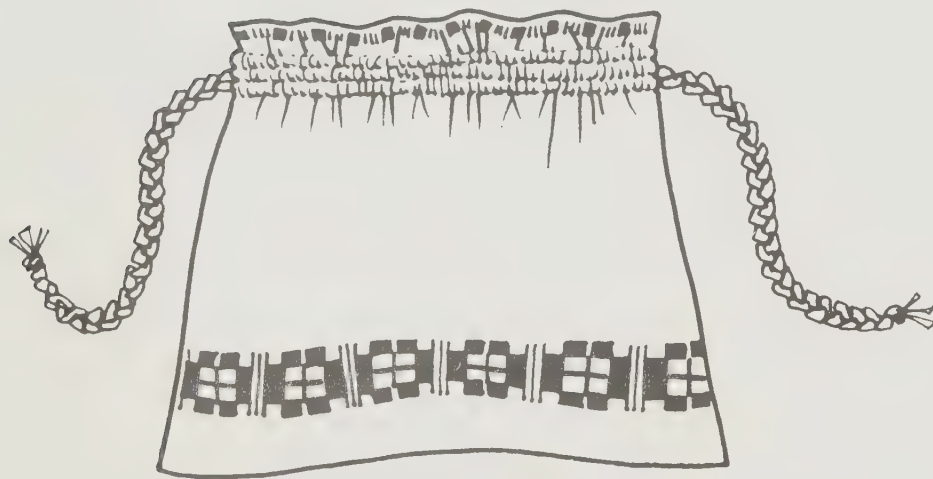
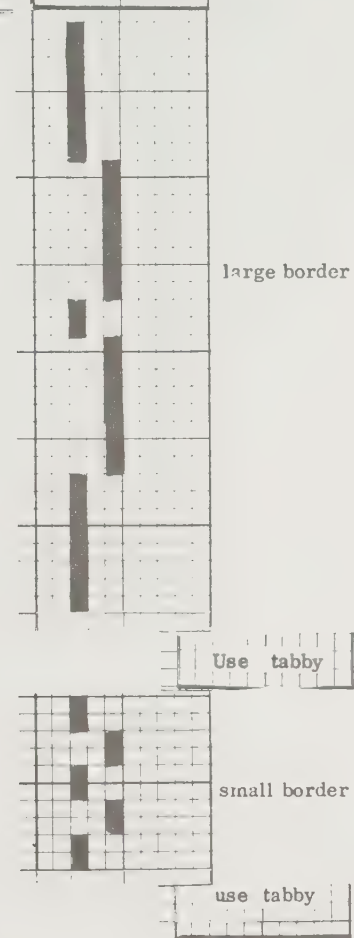


Fig. 47

Apron with monks belt border and braided
tie



Project 5 — APRON WITH MONKS BELT BORDERS

Monks belt is a traditional two block pattern weave in which pattern blocks alternate with tabby blocks - pattern yarn runs in and out of a tabby foundation. Two shuttles are necessary, one to weave the foundation fabric and the other to weave the pattern. It is important that the foundation fabric be woven perfectly.

In weaving monks belt, each pattern shot is followed by a tabby shot. Care must be taken that the tabby shots alternate. Example: Pattern, treadle 1; tabby, treadle a; pattern, treadle 1; tabby, treadle b, etc. The pattern treadles may be repeated as often as desired, but each pattern shot must be followed by a tabby, and the tabbies must alternate to build up the foundation fabric.

Warp: 2/16 cotton, white or natural, 730 ends

Sley: 2 ends per dent in 15 dent reed

Wefts: Tabby - 2/16 mercerized cotton, white
or 2/16 rayon, white

Pattern - 2/8 coloured rayon, double
on shuttle

Weaving:

Tabby 5 inches for hem

Weave large border shown on chart Fig. 46

Tabby for depth desired (10", 11" or more)

For ties - treadle 1 and insert long strands of heavy yarn in this shed. Leave about 20-30 ins. at each edge.

Tabby 1/2 inch

Treadle 1, insert long strands as before

Tabby 1/2 inch

Treadle 1, insert long strands again

Tabby 1 inch

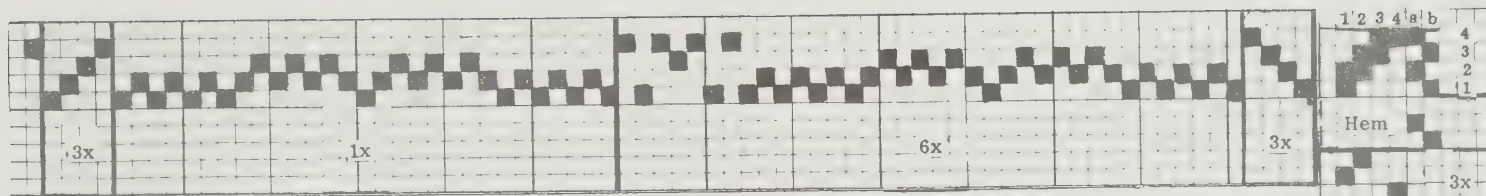
Weave small border shown on chart fig. 46

Tabby enough to make narrow hem at top, or enough to make hem behind border.

Insert coloured thread across to mark end of apron.

Repeat from top of weaving instructions for next apron.

To make up — hem top and bottom. Press. Gather top of apron on the three lots of long strands. Best way to do this is to hold all three groups of strands and pull them at once. Braid on each side, and tie knot at ends to keep it from unbraiding.

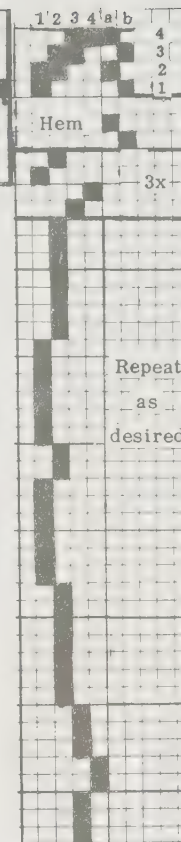


Project 6 — TABLE MATS WITH SWEET BRIAR BEAUTY PATTERN

This project introduces the weaver to overshot, a four block, two shuttle weave. It was used a lot in pioneer days, especially for coverlets. There are fine examples displayed in the textile section of the Royal Ontario Museum in Toronto. Interest in handwoven coverlets has been renewed and the old overshot patterns revived using either handspun natural dyed yarns or modern yarns. In this weave there are blocks of pattern, blocks of tabby and blocks of half tones (spotted). Two shuttles are required, one to weave the pattern shots and one to weave the tabby foundation fabric.

Each pattern shot is followed by a tabby shot. Individual pattern shots may be repeated as often as desired, but the tabby shots must alternate a and b to build up the foundation fabric. Treadling directions are usually given in short draft form, where a figure in a treadle column shows the number of times the pattern treadle is to be used. Tabby treadling is not shown on the draft, but is understood by the weaver. Thus if the figure 2 is written in the column for treadle 1, it means that you treadle: pattern 1, tabby a, pattern 1, tabby b.

Complete draft for table mats in Sweet Briar Beauty pattern Fig. 48



Similarly other figures represent pattern shots only. It is important that the weaver remembers to alternate the tabby treadles throughout the weaving even though the treadling draft does not show the tabbies.

Warp: 2/8 cotton, natural or white, 270 ends

Sley: 2 ends per dent in 10 dent reed
(13½" wide in reed)

Wefts: Shuttle 1 — 2/8 cotton, coloured, double
on shuttle, for pattern

Shuttle 2 — 2/16 cotton, natural or
white, for tabby

Shuttle 3 — 2/8 cotton, same colour as
1, single on shuttle, for
hems

Weaving:

Tabby 2½ inches with shuttle 3 for hem allowance.

Pattern:

(See Treadling draft, Fig. 48)

Use shuttle 1 for pattern shots, shuttle 2 for tabby shots. Following treadling directions from beginning, weave the short twill run, and use the pattern repeat section for length desired. End with pattern balance and final twill run. Tabby 2½ inches with shuttle 3 for hem allowance.

Project 7 — TAPESTRY

Tapestry is woven on a strong warp threaded for tabby and set far enough apart so that the wool weft will beat down and completely cover the warp. The weaver can prepare an outline design similar to a paint-by-number drawing, or can work out the design as the weaving progresses. Only tabby sheds are used, so any loom will work. If one has no loom, warp may be wound on a picture frame or an artist's canvas stretcher. The sheds are obtained by use of the tabby treadles, levers on looms, or by picking up with the fingers. Weaving can be done straight across the warp, laying in the colour areas according to the prepared design. In some instances certain areas may be built up individually. In some types of tapestry weaving the coloured weft yarns are locked with each other where they meet. See Fig. 49 .

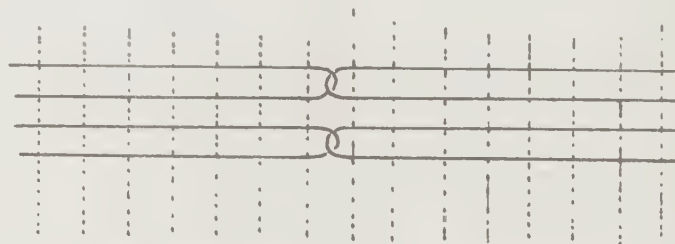


Fig. 49 Weft Lock

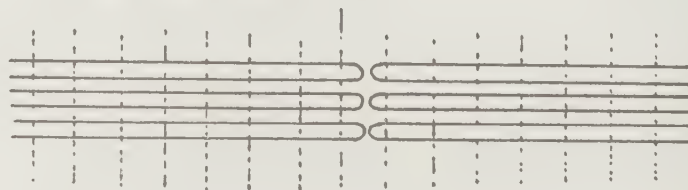


Fig. 50 Warp Lock

In other types, yarns are not locked and a tiny space comes between the areas of colour. See Fig. 50 . If these spaces are continued at one point in the weaving, they make a slit.

In still other types the yarns are locked around a single warp end. See Fig. 51 . When the weft is beaten down, a tiny saw tooth effect will appear at the point where the wefts meet. In some the ends of weft are left hanging on the back of the tapestry. In others, ends are darned into the weft. It is a good idea to make a sample tapestry with horizontal, vertical, circular and various diagonal lines. This gives practice in the different lines the weaver will encounter in tapestry work. See Fig. 53 ,

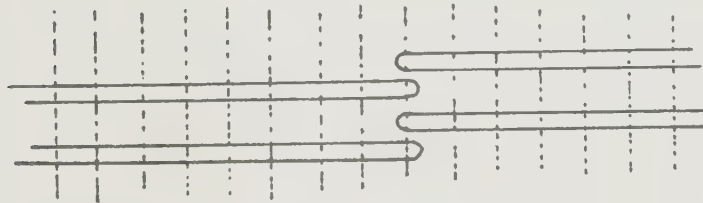


Fig. 51 Dovetail

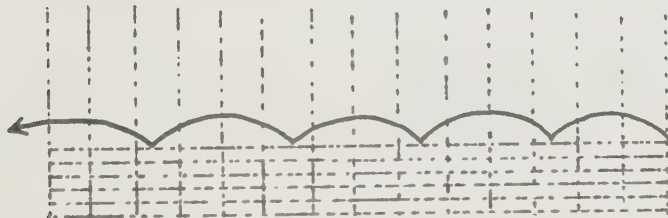


Fig. 52 The tapestry weft

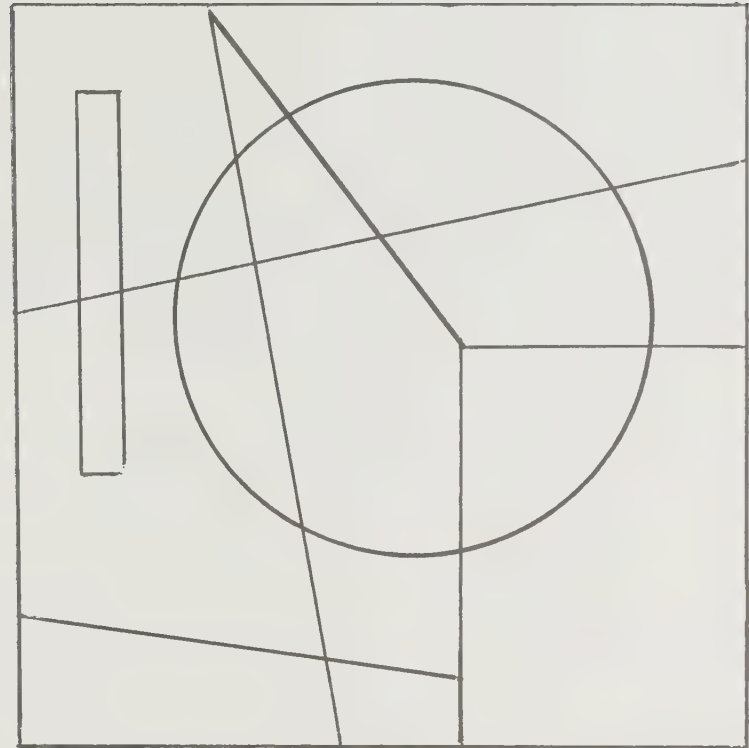


Fig. 53 Design for sample tapestry

Warp suggestions:

Strong wool, linen, seine twine, or jute. For a sample warp, No. 9 seine twine set at 6 ends per inch.

Weft suggestions:

Heavy wool used single, fine wool used double, triple or quadruple, sometimes mixing colours or shades for further effects, handspun wool. Some synthetics, etc.

Weaving:

1. Insert cardboards to make a firm edge against which to beat.
2. Pin the design behind the warp as a guide
3. Open shed, carry weft through. Keep shed open and warp very loose. Starting from the side from which the weft came, with a finger draw the weft down to the cardboard in scallops $1\frac{1}{2}$ inches or so apart. See Fig. 52 .
4. Beat into place with reed, kitchen fork or coarse comb.
5. Change shed and beat again.
6. To help keep edges straight, use a temple (stretcher), or at intervals take a length of twine, put it around the edge warp on each side and tie to the side of the tapestry frame
7. Different colours are introduced as their areas are reached on the design.
8. When weaving is completed, tapestry is cut from the loom leaving enough warp to tie to keep weft in place. Take two ends of warp, tie in a square (reef) knot. Press knots and ends of warp to back of tapestry and slip stitch to keep in place. Block the finished work.

Tapestries are often woven wrong side uppermost, so the right side of the finished tapestry would show a design opposite to that of the original drawing.

Project 8 — RUG WEAVING

This is a type of weaving with a flat no-weft- skip colour pattern surface and a weft skip underside which provides a cushion for the rug.

Warp: Linen rug warp, 8/5

Threading: As per threading draft. For a better edge, make first and last ends double.

Sley: Use 6 dent reed. Sley every other dent to make three ends per inch. The double ends at the edges are sleyed in adjacent dents.

Weft: Wool — o = natural
+ = orange
x = brown

The weight of the wool will determine the number of shots in each colour needed to square the blocks of colour.

Weaving:

1. Insert cardboard in the shed for fringe.
2. Weave tabby with rag strips for 2 inches to give firm foundation.
3. Follow treading draft, repeating each run of shots to square the blocks. Weave for length desired.
4. Weave tabby with rags for 2 inches.
5. Leave space for fringe.
6. Cut from loom. Remove rag strips. Tie fringe.

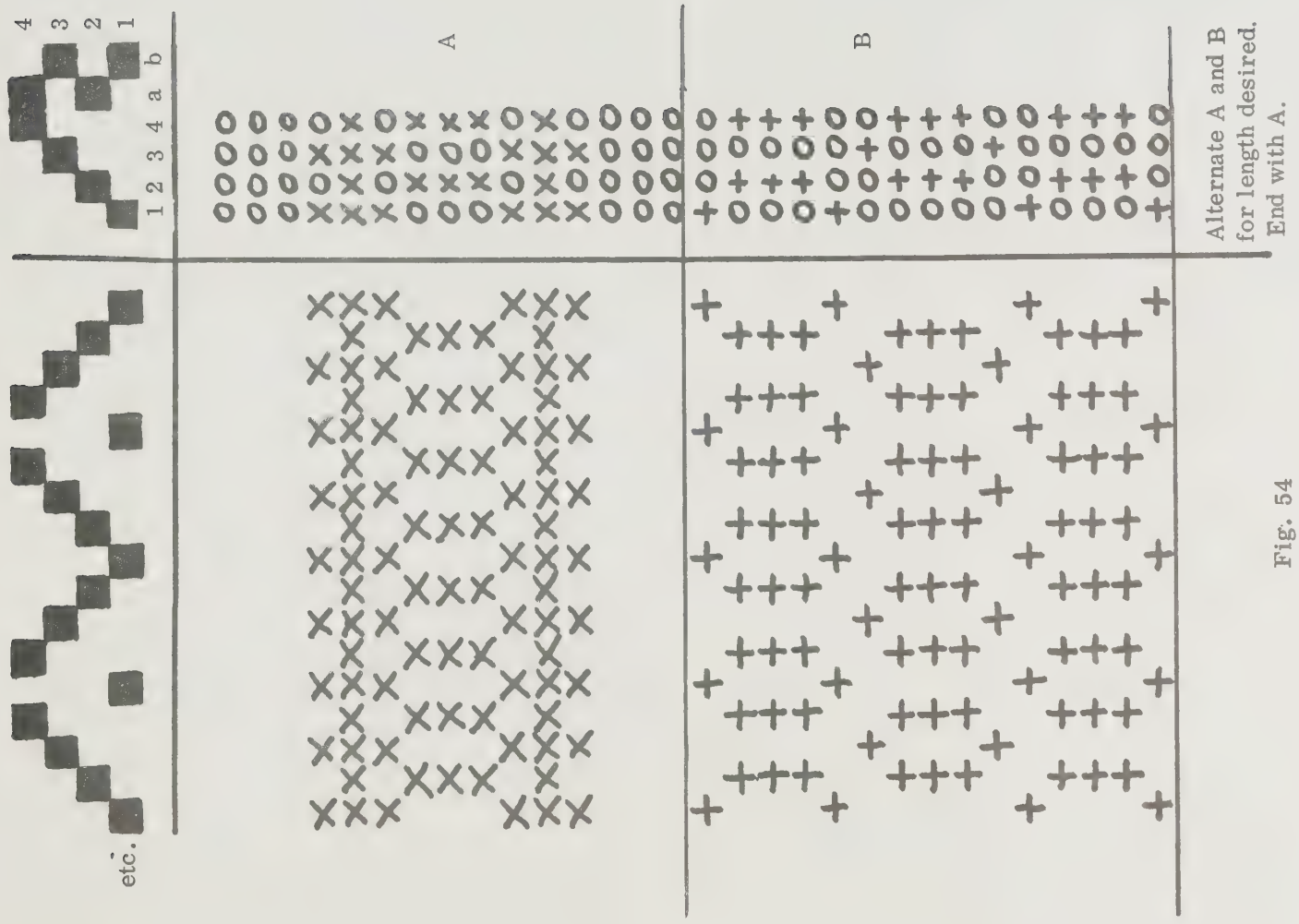


Fig. 54

Treadling:

Throughout the order is 1,2,3,4 as shown in the diagram, with symbols to indicate the colour to be used with each treadle. Do not vary the order of the 1,2,3,4 treadling! Variation is only in the order of colours used. After four weft shots there will be a continuous single line across the warp, with colours in the places indicated by symbols on the treadling draft. Each horizontal line of colour (treadling 1,2,3,4) must be repeated enough times to make little squares of colour.

Project 9 — PONCHO

This poncho can be made two ways. It can be woven in two pieces and sewn together leaving the centre unsewn for the neck. Or it can be woven in one piece, double width, with a slit woven in for the neck.

ONE PIECE PONCHO Make the warp the full width of the poncho. Weave length desired right across for front. Using two shuttles, weave half way across warp with each, bringing both shuttles to surface. Change shed. Take each shuttle back through the warp in the direction from which it came for the first weft shot. Continue this way, taking one shuttle back and forth through the warp from right side to centre, and the other back and forth from left side to centre, leaving a slit at the centre of the warp. Continue this for the length desired to make the head hole. Then finish off one shuttle and use the other to weave right across as at the beginning to make the back of the poncho. See Fig. 55. No sewing is necessary. Knot fringes.

TWO PIECE PONCHO Make the warp half the width of the poncho. Weave two lengths, making allowances for fringes if desired. Butt one edge of one piece to one edge of the other and sew from the fringes up the selvages towards the neck leaving enough unsewn for your head to go through. Knot fringes.

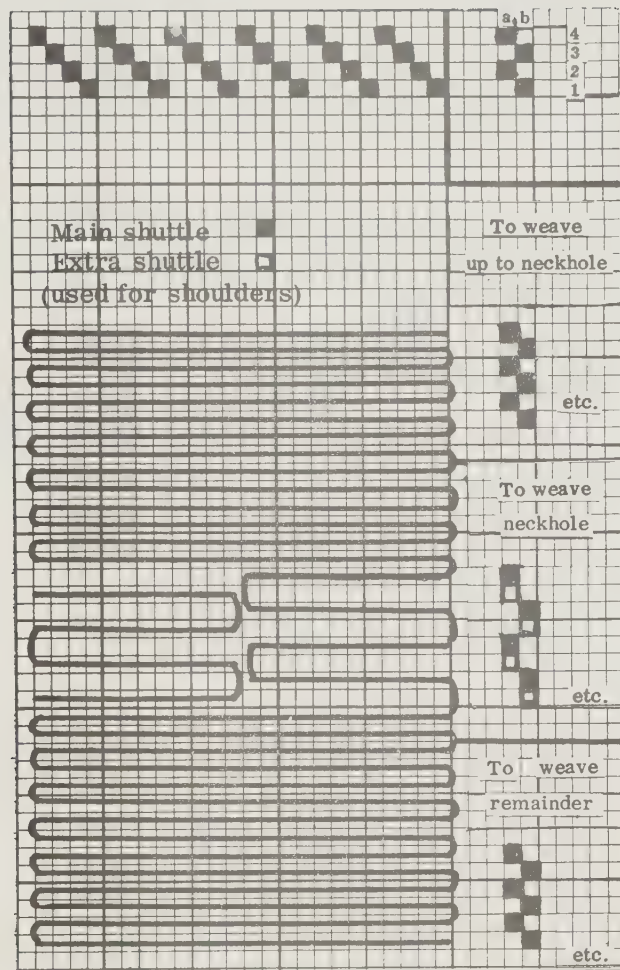


Fig. 55

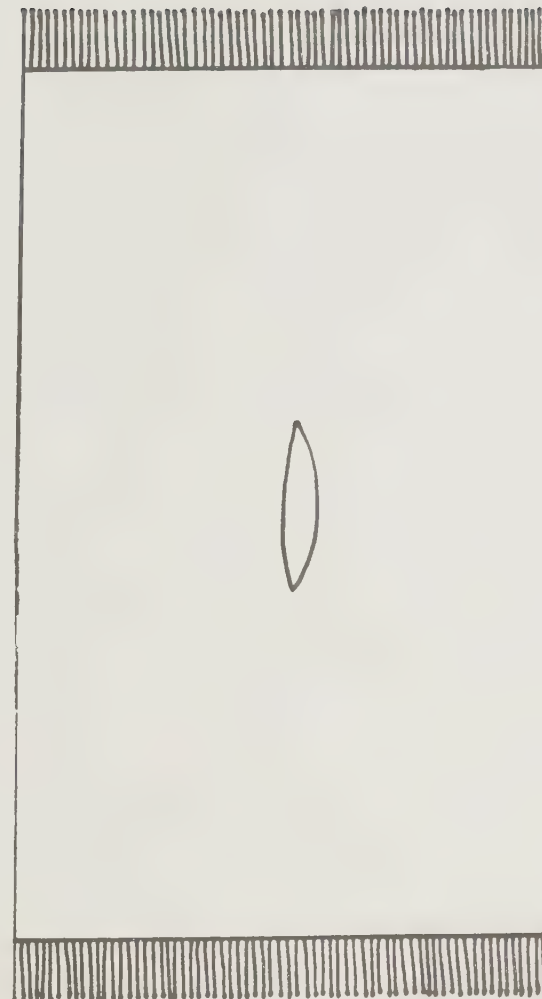


Fig. 56

Project 10 — SEAMLESS JERKIN

Warp: 100% wool weaving yarn, size 1/8 or similar. 550 to 650 ends depending on width required.

Threading: As per threading draft

Sley: 2 ends per dent in 15 dent reed

Weft: Same as warp, or your choice of yarns

(This project involves weaving a double web on one warp. For special tie-up and treadling see Fig. 58).

Weaving: Lower body

Treadle 1—count threads on upper layer only to find centre of warp. Start shuttle from centre and pass to right edge. This will weave across right side of front.

Treadle 2 — weave right to left. This will weave across entire back.

Treadle 1 — weave from left to centre. This will weave across the left side of front to the centre.

Treadle 3 — weave from front centre to left.

Treadle 4 — weave left to right, across back.

Treadle 3 — weave from right edge to front centre. Repeat all of above up to armhole.

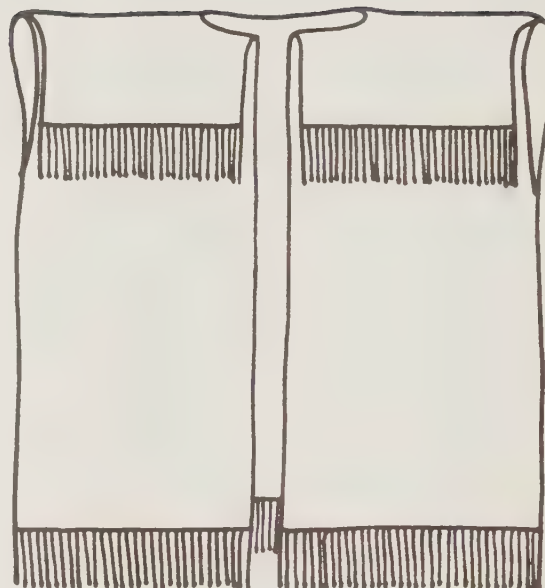
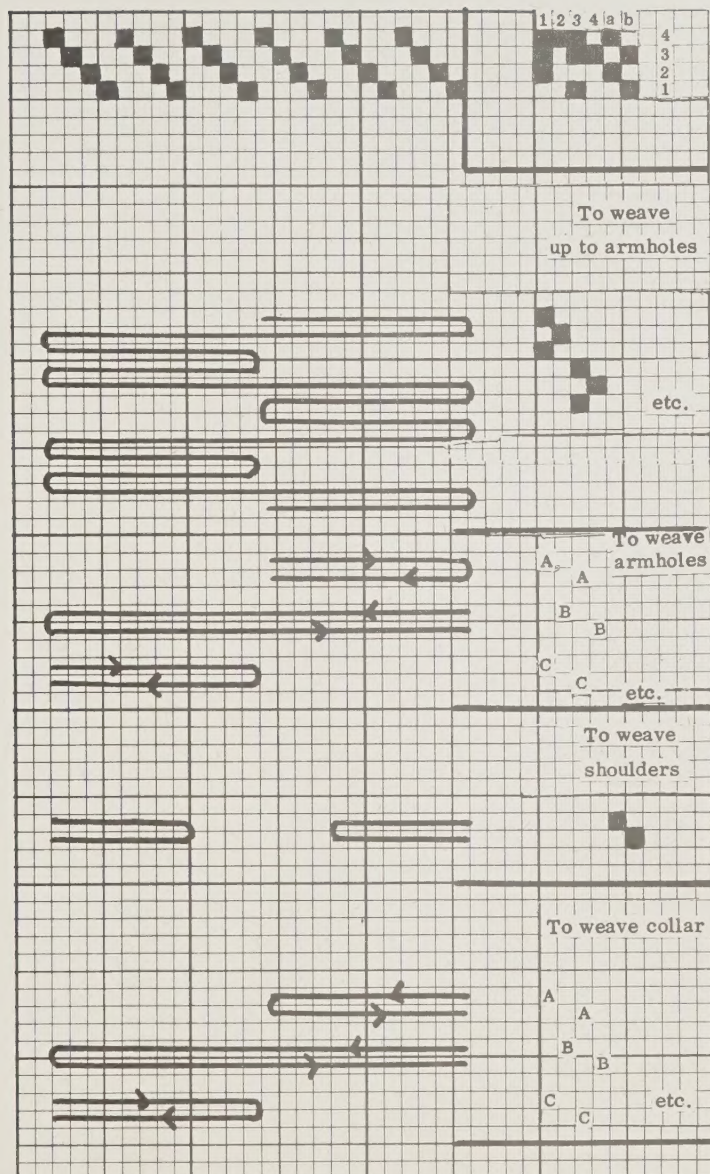


Fig. 57

This will weave from centre to side, across back, from side to centre and all the way back again to the starting point leaving a front opening and closing the sides.



Armhole section: Prepare 3 shuttles, A, B and C.

Treadle 1 — A, centre to right	} 2 shots on the right front
Treadle 3 — A, right to centre	
Treadle 2 — B, right to left	} 2 shots across the back
Treadle 4 — B, left to right	
Treadle 1 — C, left to centre	} 2 shots on left front
Treadle 3 — C, centre to left	

Repeat as needed for armhole. This will build up the side fronts and the back, leaving the sides open for the armholes.

To make shoulder seam:

Treadle tabby a. With shuttle C, weave tabby from left edge one third of the way across the warp. With Shuttle B, weave tabby from right edge one third of the way across the warp.

Treadle tabby b. With shuttle C, weave tabby back to left edge. With shuttle B, weave tabby back to right edge. This will leave the centre third for the neck opening.

Weave collar: Using shuttle A, B and C, weave as for armhole section for the length desired.

To complete: Cut weaving from loom. Knot fringes at bottom of jacket and edges of collar. No sewing is necessary.

Fig. 58

